DOCUMENT RESUME

ED 171 661 SP 014 269

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TITLE Contingency Management Learning Systems.
PUB DATE [79]
NOTE 7p.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Class Management; *Contingency Management; Elementary Education; Gymnastics; Models; *Physical Education; Student Behavior; *Student Motivation; *Systems Development; *Teaching Methods
IDENTIFIERS Skin Diving

ABSTRACT

Contingency management is a system focused on managing the motivation of students, and can be developed and utilized in any type of physical education environment from elementary to college levels. An analysis of two existing contingency management learning systems (one for a fifth-grade gymnastics unit and the other for a seventh- and eigth-grade skin diving class) shows that in almost all cases students admit they enjoy being involved in the model and teachers seem to be highly motivated as well. (DS)

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ED171661

Contingency Management Learning Systems

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A teaching and learning method or strategy that has had an impact upon physical education environments in recent years is called contingency management. This technique is based on the application of operant psychology principles and the work of Harvard psychologist, B. F. Skinner. Contingency management models have been tested in a variety of environments including: mental hospitals, drug clinics, juvenile homes, industrial settings, home settings, and educational settings (McKee, 1971; Darst and Whitehead, 1975).

Contingency management is a system focused on managing the motivation of students. Motivation is obviously an important variable in the teaching-learning process. A contingency is a relationship between a behavior and the consequence of the behavior. In this model, the student should understand exactly what he/she is supposed to do, the conditions under which he/she should do it, the acceptable criteria for evaluating the performance, and the rewards available for specific levels of performance. In many situations, teachers have been deficient in the management of the contingencies available in their particular environment.

Rushall and Siedentop (1972) have suggested the following guidelines for developing contingency management systems in physical education: 1) Define desirable student behaviors in observable, measurable terms, i.e., twenty push-ups in one minute, a five foot high jump, and an eleven second 100 yard dash; 2) Clearly specify the terminal or final performance; 3) Reinforce only the target performance, i.e., strength, speed, endurance, accuracy, or a combination; 4) Clearly state the contingency so that everyone knows what is expected of them; 5) Make sure that the contingency is fair and can be obtained with a reasonable amount of effort; 6) Performances should be arranged in a progression so that students can experience success quickly and then proceed to more difficult tasks.

These types of learning systems can be developed and utilized in any type of physical education environment, i.e., elementary, junior, and senior high activity classes, college activity classes, and academic or theory classes. Instructors must simply identify the desirable student behaviors, the effective reinforcers, and then arrange the environment so that students will work toward the achievement of the reinforcers. Motivation should be built into the system because students know ahead of time what is necessary to earn the desirable reward. Efforts should be made to make the system a positive or "fun" approach to teaching and learning.

Review of Literature

Contingency management systems have been studied in a variety of methods. They have been used as independent variables focused on changing or modifying the following classroom behaviors: disruptive behaviors, attentiveness, standardized test performance, biology, reading, math, and spelling performance. In the physical education area, contingency management has been used to affect physical skills, strength, power, work rates, teaching behaviors, and coaching behaviors. These methods have been compared to "traditional" techniques of teaching and to "movement" approaches to teaching.

Devising and Implementing Contingency Management Learning Systems in a School Environment

This writer has been involved directly with the development and field testing of several contingency management learning systems both as a teacher and as a college supervisor of several student teachers that used a contingency management approach (Darst and Whitehead, 1975; Darst and Burr, 1976; Darst, 1976 and Darst and Darst, 1977). These systems have been used at several age levels, i.e., elementary, junior high, senior high, and college age and with different physical activities, i.e., gymnastics, skin diving, and volleyball. The following two units will be discussed: 1) a 5th grade gymnastics unit and, 2) a 7th and 8th grade skin diving unit. An analysis will be presented after the two units are discussed.

Wind Gap Elementary School

A contingency management system for a fifth grade gymnastics unit was devised and implemented in Wind Gap Elementary School, located in Wind Gap, Pennsylvania. A student teacher from East Stroudsburg State College, the college supervisor, and the cooperating teacher from Wind Gap were all involved in the project.

The project included seven learning areas dispersed within the multi-purpose room. The following equipment was utilized in each learning area: 1) tumbling-four Nissen panel mats arranged in a square; 2) uneven parallel bars-one set of converted parallel bars; 3) parallel bars-one set of four-foot metal parallel bars; 4) still rings-two metal rings suspended on chains from the basketball rim; 5) balance beams-one floor-height wooden beam and one three-foot metal beam; 6) vaulting-one Swedish vaulting box (no Reuther board); 7) horizontal bar-one four-foot metal bar.

The student teacher, supervising teacher, and cooperating teacher collectively developed a list of skills that could be learned at each piece of apparatus. Performance objectives were then developed for each skill and arranged in a progressive manner from basic skills to advanced skills. Each performance objective included: the starting position, the skill to be performed, the end position, and a simple name for the skill. Each performance objective was numbered in order to speed up the evaluation process. The following performance objectives are an example of those used for the parallel bars:

1) Stand at the end of the bars and grasp both bars with your hands on top of the bars. Jump up so that your arms are now straight. Walk down the bars moving one hand at a time (hand walking). 2) From a standing position at the end of the bars with both hands on top of the bars, jump up until your arms are straight. Now hop down the bars by moving both hands at the same time (hopping travel). 3) Jump to a "cross-arm support" (both arms straight with your body between the bars) and swing your legs forward, straddling them and putting them on top of the bars. Now lean forward and place your hands in front of your legs. Swing your legs down off the bars and then up in front again--keep repeating this the length of the bar (traveling). 4) Jump to a cross-arm support (both arms straight) and swing your legs forward and backward, showing control and trying to swing your legs high both ways (leg swings). 5) Place your upper arms (by your shoulders) on top of the bar and swing your legs forward and backward. Hold onto the bars with your hands for balance (upper arm support swings).

Performance objectives similar in style were used for the other pieces of equipment.

Formal reinforcement consisted of a system of charts for each of the seven learning areas. Each chart consisted of the students' name and the number which corresponded to each performance objective. Figure 1 represents the type of chart used for the parallel bars:

(3) Parallel Bars (3)															
Name:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Figure 1 - Evaluation Chart - Parallel Bars

As students completed the specific performance objectives, they received a colored star which was placed on the chart in the corresponding box. The student worked on their skills with a partner and moved through the performance objectives at their own rate. The teachers stressed safety continually and encouraged students to attempt the skills only with proper spotting available.

Stroudsburg Middle School

A contingency management unit for skin diving was developed for 7th and 8th grade students at Stroudsburg Middle School located in Stroudsburg, Pennsylvania. This unit was used with those students that had previously completed the American Red Cross (ARC) requirements for the advanced swimmer level. Contracts were focused on the following four areas: 1) face mask, 2) fins, 3) snorkel, and 4) combination skills.

The following is the face mask contract:

Mark the date that each of the performance objective is met.

__1. Adjust face mask strap to your head size. __2. Apply saliva to face mask--rub all around face plate, DO NOT RISE (For preventive). __3. Fill mask with water and hold to face without strap. In chest deep water, go under in vertical position and by tilting head from chest backwards push against upper edge of mask and exhale gently. Completely clear mask 3 out of 5 attempts. VERTICAL TILT. __4. Fill mask with water and hold to face without strap. While in a horizontal position, roll onto left shoulder pushing gently with right hand against side of mask and exhale gently. Completely clear mask 3 out of 5 attempts. HORIZONTAL ROLL. __5. Repeat no. 3 with strap attached to back of head. __6. Repeat no. 4 with strap attached to back of head. __7. In 6 feet of water, submerge to bottom of pool, by pinching nostrils, gently exhale into mask until you feel your ears equalize. Successfully equalize pressure in 4 out of 5 attempts. __8. In 9 feet of water repeat no. 7. __9. Repeat no. 3 in deep water. __10. Repeat no. 4 in deep water. __11. Throw mask into shallow water, submerge and put mask on. Complete vertical tilt clear in one breath, 4 out of 5 attempts. __12. Throw mask into shallow water, submerge and put mask on. Complete horizontal roll clear in one breath 4 out of 5 attempts. __13. Same as 11 in 6 feet of water. __14. Same as 11 in 9 feet of water. __15. Same as 12 in 6 feet of water. __16. Same as 12 in 9 feet of water.

These specific contracts were explained and distributed to those students that had met and completed theARC advanced swimmers level of mastery. One-fourth of the pool was made available for these students to practice and complete the contracts. Students worked with partners and progressed through the contracts at their own rate. At the end of each class period, students dated and initialed the specific performance objectives that had been completed and returned the contracts to their respective instructor. The students working on the contracts were not under the direct supervision of an instructor because normal organized instruction was occurring in the remaining three-fourths of the pool with students working on their respective ARC swimming level. Reinforcement consisted of marking off the accomplished objectives and the freedom of working with another student without the direct supervision of the teacher.

Analysis of the Two Systems

After utilizing the contingency management model in several different classes that ranged in size from ten to thirty-six people, the following advantages appear to be in order: 1) The students knew exactly what was expected of them; 2) The students seemed highly motivated by the course format; 3) The unit format provided all students with some success as well as a challenge; 4) The students were able to progress at their own rate; 5) The students were able to select their own learning activities and sequence of activities; 6) The students were forced to accept a degree of responsibility for learning; 7) The unit format emphasized learning rather than teaching; 8) The unit format allowed students to work together or individually depending on their preference; 9) The unit format reduced the amount of in-class time for managerial activities and increased the teacher's time spent as an agent of feedback; 10) The unit format enables administra-

tors, supervisors and parents to know exactly what was expected and accomplished by the students.

The author feels that some people might consider the following as disadvantages: 1) The performance objectives are time-consuming to write and they need constant revision and up-dating depending on the group you are working with; 2) The teacher may have to spend a considerable amount of time evaluating if the class is quite large; 3) Some students may have problems interpreting the performance objectives and may be continually asking for teacher assistance; 4) Some students may take advantage of their freedom and behave inappropriately; 5) The teacher has to spend time developing instructional devices and media, i.e., court markings, hanging ropes, and loop films; 6) The teacher has to spend time keeping accurate records on student achievement.

In almost all cases, students admitted that they enjoyed being involved in this model of instruction. The teachers involved in these units seemed to be highly motivated in this format. Throughout the physical education literature, a case has been built for improving students' and teachers' attitudes towards the teaching/learning process. It appears that this has been accomplished in these teaching/learning situations. The students and teachers not only enjoyed the activities of gymnastics and skindiving, but also the teaching/learning process in general. Hopefully, these students developed "approach tendencies" for the specific activities and the overall learning process.

Contingency management may not be panacea for all of the ills of your particular situation but it may offer some advantages for you and your students. It appears to be an effective tool for improving the teaching/learning process. Continued research efforts in this area are necessary to demonstrate the value of the model, for recognizing and understanding possible limitations and for making necessary changes.

References*

Darst, P. W. Volleyball Contracting: a tool for learning. AzJOHPER, No. 1 (Fall, 1976), 14-16.

Darst, P.W. and C. A. Darst. Individualizing skin diving teaching and learning. Submitted for publication.

Darst, P. W. and N. J. Burr. Developing a learning environment for gymnastics. PaJOHPER, 46, No. 3 (Fall, 1976), 10-12.

Darst, P. W. and S. M. Whitehead. Developing a contingency management system for controlling student behavior. PaJOHPER, 45, No. 3 (Fall, 1975), 11-12.

McKee, J. M. Contingency management in a correctional institution. Educational Technology, 11, (1971), 51-54.

Rushall, B. and D. Siedentop. The development and control of behavior in sport and physical education. Philadelphia: Lea and Febiger, 1972.

*A complete list of references is available from the author.